

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A semiconductor device comprising:  
a crystalline semiconductor film having a thickness ~~between~~ from 5 ~~[[and]]~~ to 40 nm, wherein:  
a carbon concentration and a nitrogen concentration are  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $1.5 \times 10^{19}$  atoms/cm<sup>3</sup> or less;  
a main orientation plane is a {110} plane; and  
an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of 70.5° with respect to the equivalent axes is within 4°.
2. (Original) A semiconductor device according to claim 1, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.
3. (Original) A semiconductor device according to claim 1, wherein the crystalline semiconductor film comprises  $\text{Si}_x\text{Ge}_{(1-x)}$  ( $0 < x < 1$ ).
4. (Original) A semiconductor device according to claim 1, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.
5. (Original) A semiconductor device according to claim 1, wherein the semiconductor device is at least one selected from the group consisting of a personal

computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

6. (Currently Amended) A semiconductor device comprising:

a crystalline semiconductor film having a thickness ~~between~~ from 5 ~~[[and]]~~ to 40 nm, wherein:

a carbon concentration and a nitrogen concentration are  $1 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less;

a main orientation plane is a {110} plane; and

an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of 70.5° with respect to the equivalent axes is within 4°.

7. (Original) A semiconductor device according to claim 6, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

8. (Original) A semiconductor device according to claim 6, wherein the crystalline semiconductor film comprises  $\text{Si}_x\text{Ge}_{(1-x)}$  ( $0 < x < 1$ ).

9. (Original) A semiconductor device according to claim 6, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

10. (Original) A semiconductor device according to claim 6, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

11. (Currently Amended) A semiconductor device including a circuit which is constituted by a thin film transistor having a semiconductor film as a channel formation region, wherein:

a carbon concentration and a nitrogen concentration are  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $1.5 \times 10^{19}$  atoms/cm<sup>3</sup> or less;

a main orientation plane is a {110} plane; and

an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of 70.5° with respect to the equivalent axes is within 4°.

12. (Original) A semiconductor device according to claim 11, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

13. (Original) A semiconductor device according to claim 11, wherein the crystalline semiconductor film comprises  $\text{Si}_x\text{Ge}_{(1-x)}$  ( $0 < x < 1$ ).

14. (Original) A semiconductor device according to claim 11, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

15. (Original) A semiconductor device according to claim 11, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

16. (Currently Amended) A semiconductor device including a circuit which is constituted by a thin film transistor having a semiconductor film as a channel formation region, wherein:

a carbon concentration and a nitrogen concentration are  $1 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less;

a main orientation plane is a {110} plane; and

an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of 70.5° with respect to the equivalent axes is within 4°.

17. (Original) A semiconductor device according to claim 16, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

18. (Original) A semiconductor device according to claim 16, wherein the crystalline semiconductor film comprises Si<sub>x</sub>Ge<sub>(1-x)</sub> (0<x<1).

19. (Original) A semiconductor device according to claim 16, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

20. (Original) A semiconductor device according to claim 16, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

21. (New) A semiconductor device comprising:

a crystalline semiconductor film having a thickness from 5 to 40 nm, wherein:

a carbon concentration and a nitrogen concentration are  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $1.5 \times 10^{19}$  atoms/cm<sup>3</sup> or less; and

an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of  $70.5^\circ$  with respect to the equivalent axes is within  $4^\circ$ .

22. (New) A semiconductor device according to claim 21, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

23. (New) A semiconductor device according to claim 21, wherein the crystalline semiconductor film comprises  $\text{Si}_x\text{Ge}_{(1-x)}$  ( $0 < x < 1$ ).

24. (New) A semiconductor device according to claim 21, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

25. (New) A semiconductor device according to claim 21, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

26. (New) A semiconductor device comprising:  
a crystalline semiconductor film having a thickness from 5 to 40 nm, wherein:  
a carbon concentration and a nitrogen concentration are  $1 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less; and  
an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of  $70.5^\circ$  with respect to the equivalent axes is within  $4^\circ$ .

27. (New) A semiconductor device according to claim 26, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

28. (New) A semiconductor device according to claim 26, wherein the crystalline semiconductor film comprises  $\text{Si}_x\text{Ge}_{(1-x)}$  ( $0 < x < 1$ ).

29. (New) A semiconductor device according to claim 26, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

30. (New) A semiconductor device according to claim 26, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

31. (New) A semiconductor device including a circuit which is constituted by a thin film transistor having a semiconductor film as a channel formation region, wherein:  
a carbon concentration and a nitrogen concentration are  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $1.5 \times 10^{19}$  atoms/cm<sup>3</sup> or less; and  
an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of  $70.5^\circ$  with respect to the equivalent axes is within  $4^\circ$ .

32. (New) A semiconductor device according to claim 31, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

33. (New) A semiconductor device according to claim 31, wherein the crystalline semiconductor film comprises  $\text{Si}_x\text{Ge}_{(1-x)}$  ( $0 < x < 1$ ).

34. (New) A semiconductor device according to claim 31, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

35. (New) A semiconductor device according to claim 31, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.

36. (New) A semiconductor device including a circuit which is constituted by a thin film transistor having a semiconductor film as a channel formation region, wherein:

a carbon concentration and a nitrogen concentration are  $1 \times 10^{18}$  atoms/cm<sup>3</sup> or less, and an oxygen concentration is  $5 \times 10^{18}$  atoms/cm<sup>3</sup> or less; and

an absolute value of a rotation angle made by equivalent axes between adjacent crystal grains or by axes in rotation relation of 70.5° with respect to the equivalent axes is within 4°.

37. (New) A semiconductor device according to claim 36, wherein the crystalline semiconductor film is a single crystal or substantially a single crystal.

38. (New) A semiconductor device according to claim 36, wherein the crystalline semiconductor film comprises Si<sub>x</sub>Ge<sub>(1-x)</sub> ( $0 < x < 1$ ).

39. (New) A semiconductor device according to claim 36, wherein the semiconductor device is at least one of a liquid crystal display device and an EL display device.

40. (New) A semiconductor device according to claim 36, wherein the semiconductor device is at least one selected from the group consisting of a personal computer, a video camera, a goggle-type display, a digital camera, a player using a recording medium, a mobile computer, and a projector.--